

CSIG PRIORITY ISSUES – Work-in-Progress Jan./Feb. 1999

Issue 1: Chemical Safety as a part of Integrated Safety Management (ISM)

Issue 1-1: DOE Chemical Safety Guide

Description of Issue:

Chemicals are an integral part of many operations Conducted at the Department of Energy (DOE), yet DOE's current guidance for Integrated Safety Management (ISM) does not specifically address chemical safety.

Lack of clear DOE guidance for integrated safety management of chemical activities at DOE sites is likely to result in ISM systems and their implementation that inadequately manage chemical hazards. Of special concern are chemical hazards that are not covered by the Process Safety Management (PSM), Risk Management Plan (RMP), or Laboratory Safety rules. Many DOE chemical operations fall in this "gray area" having chemical hazards not covered by current regulations. Questions of adequate resources, well-implemented management processes, needed documentation, a defined process for chemical work authorization agreements, and trained staff for the proper planning, analysis, control, and conduct of chemical work, need to be answered via a fully coordinated guide. The guide will provide information, procedures, and tools related to safety management of chemical hazards that when adapted to and integrated in a site's ISM systems will strengthen the system's to adequately address chemical hazards not covered by law.

Champion's Statement: A chemical safety guide needs to be developed that references existing processes, methods, and tools that may be useful for improving ISM systems across the DOE complex. This guide will focus on tailoring existing safety requirements and best practices adopted by the most responsible companies in the commercial chemical industry for those situations where chemical hazards are not covered

The first step is to make an annotated outline of the draft guide's proposed contents for review by CSO, ISM coordinators, and site DOE and contractor representatives. This will serve as the framework for subsequent addition of necessary details and information.

I ask the Issues 1-1 subteam as well as other interested CSIG team members to comment on the overall approach outlined above and to provide me with suggestions for what should be addressed by the guide. Short "one liners" are sufficient as a start. The identification of CSO and line representatives having vital interest in such a guide is also requested. Here is my first attempt at a "one liner" outline:

Format: Guide Body will have short descriptions of recommended elements of chemical safety management. Guide Appendices will provide detailed information and examples of how a management element might be implemented.

Scope and purpose of Guide

Adaptation of this chemical safety guidance into a site's ISM System
Tailoring philosophy – practical, focus on work, improve effectiveness, etc
Emphasis on Chemical Industry best practices

Key elements of the guide might include (some of this came from draft Y-12 material , thanks David, plus some incomplete thoughts of my own):

Work Description and Planning

- A work plan that details the work and its evolutions, and provides operations information and safety review needs.
- A change control process that flags changes in personnel, facility configuration, operations design and procedures, operational requirements, and technology that signals the need for further hazards analysis and staff attention.

Hazards Analysis

- A hazard evaluation to identify potential accidents and evaluate structures, systems, components, and controls relied on for safety.

A variety of hazard evaluation tools and capabilities (trained personnel) should be available. Tools include: Preliminary Safety Walkthroughs; Risk Mapping; Facility Hazards Analysis; Job and Task Hazards Analyses; Transient Work Analysis; and methods for timely analysis of unaddressed hazards when discovered.

Implementation of Appropriate Controls

recommendations of hazards analyses, and of ES&H concerns raised by employees and the public.

- Training measures to ensure that personnel whose actions are relied on for safety are appropriately trained to perform their safety functions.
- Procedures developed and implemented to enable personnel who are relied on for safety to effectively carry out their duties.
- Quality assurance measures to ensure that items relied on for safety and measures used to ensure their continuous availability and reliability are of sufficient quality.
- Inspection, test, and maintenance measures to ensure the continuous availability and reliability of all hardware, tools, and personal protective equipment relied on for safety.

Documentation Needs and Requirements

- Records that document safety program activities are kept current and maintained for the life of the facility.
- The Non-Nuclear Equivalents of Work Authorization Processes and Authorization Basis Documents Related to Chemical Activities

Conduct of the Work

- Implementing a written process to confirm readiness to perform the work
- Work supervision to ensure that work is performed according to the approved work plans

Feedback, Lessons-Learned, and Continuous Improvement

- Periodic audits and assessments to ensure that operations are being conducted safely
- Investigations of operational events to prevent recurrence and ensure that they do not lead to more serious consequences.

Issues and concerns

1. Should we use nuclear terminology, e.g. authorization basis documents, or make up new terms?
2. If we produce a guide only and not a mandatory “driver” how will the guide be used?

concerned with the “gray” area of less than TQ values?

References (to be provided)

- DOE Order 5481.1B
- 1997 Draft Notice on Nonnuclear Facility Safety Analysis (Never Issued)
- DOE STD-3009-94
- The Oak Ridge Y-12 PSM Approach
- The 2 DOE Chem Safety Handbooks and one HAZOPS example document, see our web page
- Applicable CCPS Guides
- HASP documents and requirements (OSHA 1910.120 (b)(4)(ii) and EM Limited Technical Standard: SAFT 0025 “HASP Guidelines”)
- Others ...team please identify and provide.

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Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

Deliverables	Proposed Dates
Draft Proposed Approach	2/99
Final Approach	3/99
CSO Approval of Outline	4/99
Draft Guide	6/99
Final Coordinated Guide	10/99

Decision Points:

To Be Determined....

Issue 1-2: Management Priority

Description of Issue:

This issue was combined with Issue 1-1, and the teams merged

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Issue 1-3: Use of Relative Risk when Incorporating Chemical Safety into ISM

Description of Issue:

Chemical hazards should be evaluated using qualitative probabilities and consequences. The results of this analysis could then be used during ISM process to ensure that all participants are aware of how likely an exposure is and what the outcome of the exposure would be. This knowledge would help the chemical users and chemical risk acceptance decision makers to focus on risk minimization. This could then be used as a method of comparison for radiological and chemical consequences which would allow an opportunity for equal rigor in the evaluation of consequences of radiological and chemical scenarios.

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Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

To Be Determined....

Issue 2: Chemical Safety Issues During Facility Transition

Issue 2-1: Characterization of “legacies”

Description of Issue:

No Champion identified – PROJECT DEFERRED

Issue 2-2: Available Expertise: Near Misses

Description of Issue:

ISSUES 2-2 AND 7-2 HAVE BEEN COMBINED UNDER ISSUE 7-2

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Issue 2-3: Management of Chemical Safety Basis

Description of Issue:

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Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

To Be Determined....

Issue 3: Chemical Safety in Laboratories

Issue 3-1: Defining the latitude of the unassisted Principal Investigator (PI) to analyze hazards and select controls.

Description of Issue:

Each lab would operate within an envelope. The basic envelope would be the precautions specified by the applicable CHP for that lab. The Principal Investigator (PI) would be free to analyze hazards and select controls if the following are avoided:

- **Working with volatile materials with Occupational Exposure Limits <<50 ppm (from OSHA .1450, Appendix B)**
- **Working with solids with Occupational Exposure Limits <<50 micrograms per cubic meter, if aerosolized (PEL for Pb and Cd are 50 micrograms per cubic meter; for comparison that for Cu is 200 micrograms per cubic meter)**
- **Toxic hazards, TLV <<5 ppm (TLV-C for HCl), LD50 <<20 mg/kg (from HMIS health = 4), or LC50 <<50 mg per cubic meter [0.05 mg/l kg (from HMIS health = 4)]**
- **Reproductive hazards, teratogens, embryotoxins (from OSHA's requirement for additional precautions and various CHPs)**
- **Carcinogens (As above)**
- **Mutagens (by analogy to carcinogens)**
- **Moderate or high chronic toxicity (from .1450, Appendix A)**
- **High acute toxicity (As above)**
- **Pyrophoric**
- **Flash point <<0 deg. F (Flash points for ether, -49 deg. F, and gasoline, -50 deg. F, <<0 deg. F)**
- **Readily peroxidizable (this is available, the list would need to be disseminated)**
- **Water reactive**
- **Aerosolization of a solid or liquid by grinding, cutting, vaporization, etc.**
- **Substance governed by an OSHA substance specific registration or a state law or regulation for a specific chemical.**
- **NFPA or HMIS rating of 4 for health or reactivity**
- **Working in a confined space**

- **Voltage >600 V (common definition of high voltage where skin resistance is overcome)**
- **Radionuclide**
- **Pressurized air or gas >100 psig**
- **Liquid quantity IN USE at any time >5 gallons, other than water; liquid quantity IN STORAGE at any time >25 gallons, other than water.**
- **Scaling up quantity in use by 5 or more times.**
- **New type of instrumentation to obtain a Job Hazard Analysis**
- **Burning or pyrolyzing materials**
- **Any other known highly hazardous condition**

General CHP precautions would apply in other circumstances. If any of these conditions were found, then additional precautions would be specified by agreement between the experimenter and her/his ES&H people. Then the precautions for that lab would become the universal precautions specified in the CHP plus the special ones for the specific hazards not already covered and the envelope for that lab would be the operations allowed by the revised precautions.

Introducing more hazards not covered by the universal precautions and subsequent changes would require revising the precautions for that lab/changing the envelope. At LLNL, this can be done by revising Safety Procedures or Hazard Assessments. At other places it could be accomplished by revising CHPs or the equivalents to Safety Procedures. A Safety Procedure is a document that specifies responsible parties, describes hazards, describes controls, and provides other supporting information. A Hazard Analysis is used to meet 29CFR1910.132 requirements for documenting why PPE is issued, but includes a place where all controls, such as engineering controls and safety showers/eyewashes, are listed.

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Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

To Be Determined....

Issue 3-2: Building Cooperative Relationships with Principal Investigators (PIs)

Description of Issue:

NONE SUBMITTED AS YET...

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Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

To Be Determined....

**Issue 4: Chemical Information
Management and Lessons Learned***

***(formerly entitled “Access to chemical safety and lessons learned information”)**

**ISSUE 4-1: Need for chemical management
system “best practices” that supports the
business plan and demonstrates cost
effectiveness**

Description of Issue:

As a part of the discussion during the November 1998 Chemical Safety Workshop on access to chemical safety and lessons learned information, the breakout group was concerned about the lack of a recommended, best practice, chemical management system. The group was concerned that all the components of a best practice management system would not be identified by some elements within the DOE complex.

In addition, after the best practice is identified, those professionals responsible for the health and safety program and mid-level line management would have the task of convincing senior line management that the program is needed and should be supported. To achieve this, the group believed that a recommended chemical management system should be accompanied with a supporting business plan that demonstrates the financial value of implementing the program. This business plan should demonstrate on a dollar basis the value of implementing a recommended chemical management system.

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Schedule of Deliverables, Decision Points:

To Be Determined....

Deliverables:

The deliverables are expected to be guidelines which can be published and presented at an appropriate forum.

Schedule and Decision Points:

A proposed approach to resolving the issue consists of capturing and institutionalizing the best elements of chemical safety management, e.g., a directory of supporting elements which can be used by DOE field elements to ensure all components of a best practice system is identified. In addition, for each element or groups of elements, a business case needs to be developed which will demonstrate the financial advantages of implementing the practice.

The protocol and approach recently developed and applied at Hanford, which was briefly discussed at the Joint Chemical Safety Issues Workshop, Albuquerque, NM, November 1998, could provide a starting point for this work. In addition, the draft chemical management system discussed in under Issue 10 should be consulted. Issue 10-1, Championed by Bill Adair, FDR, Richland, WA, may be closely related. As such, Bill Adair and his team should be regularly consulted during this effort. In addition to sources within DOE, the chemical industry should be consulted. This can be achieved through the Chemical Manufacturers Association (CMA) and the Center for Chemical Process Safety (CCPS).

Specifically, CCPS is in the process of developing the business case for

CCPS effort.

Line Management Contacts:

Active team members are requested to identify their management's names and addresses so that the team's coordinators can periodically report to their managers the status of the work and to request continued support of the team member's time and effort.

Interactions with, & Assistance from Others:

To Be Determined...

Assistance will be needed to publish and distribute the proposed guidebook.
Assistance will also be needed to implement recommended management procedures.

**ISSUE 4-2: Use lessons learned throughout the
ISM cycle and integrate into the work
process.**

Description of Issue:

NONE SUBMITTED AS YET -- *possible merge with Issue 6-2

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Schedule of Deliverables, Decision Points:

To Be Determined....

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Interactions with, & Assistance from Others:

To Be Determined....

Issue 5: Chemical Safety in Work Planning

ISSUE 5-1: Further develop the draft Checklist/Guidance Document for chemical safety in Work Planning

Description of Issue:

Within the DOE complex, a chemical injury or exposure occurs once a month. This experience indicates that work planning, control, and execution still have problems in the area of chemical safety. Chemical hazards are often subtle and require a high degree of experience and training to identify and control. Guidance is needed to help planners and workers recognize and understand not only chemical hazards associated with the immediate task activities but also those interfacing hazards from the equipment and facility that may affect the work. A "work-in-progress" Chemical Work Planning (CWP) guide has been drafted to serve as a frame-work for discussion and improvement and has been posted on the EH-5 website for review and comment. It follows much of the format and adopts many of the features of the Hanford Automated Job Hazard Analysis User's Guide that applies to all hazards including chemical hazards. The CWP guide also incorporates best practices on chemical safety from the Rocky Flats' Job Hazard Analysis and the Job Hazards Checklist approach used by Idaho.

The purpose of this committee is to develop a model CWP guide to assist DOE sites in developing their own guides for controlling onsite chemical hazards in work activities or in performing "gap analysis" on their work planning process to improve their job hazard analysis and hazard control. This would be done by members of this committee

provide "best practices" for the guide and by working within the committee to generate ideas to improve the guide. This includes committee members working with their site / other chemical safety personnel to help further develop the draft checklist of questions and guidance information to trigger further analysis and involvement of chemical experts.

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Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

Deliverables:

To Be Determined....

Final Product will be a model chemical work planning document to be placed on the EH-5 website that incorporates the experience, best practices, and lessons-learned from participating DOE sites including private industry.

Schedule and Decision Points:

To Be Determined....

Issue 6: Common threads and lessons learned in recent chemical occurrences and identified vulnerabilities

ISSUE 6-1: Ensuring that all significant chemical safety vulnerabilities have been identified and addressed (including those that may have an impact only on facility workers.)

Description of Issue:

The DOE Chemical Safety Vulnerability Report of 1994 identified numerous generic and site-specific vulnerabilities, and required Management Response Plans from sites in the

including the May 14, 1997-chemical explosion at Hanford's Plutonium Reclamation Facility (PRF), indicate that significant chemical safety vulnerabilities persist within the DOE complex. In response to the PRF accident, the Secretary of Energy issued four directives requiring several Field Office actions. One of those, the August 4, 1997 Memorandum, was directed at requiring all sites to reassess known chemical and radiological vulnerabilities and to evaluate for new vulnerabilities on a continuing basis. In response, many sites completed extensive assessments and walk downs, and disposed of significant amounts of unneeded hazardous chemicals.

While the PRF follow up initiative clearly accelerated the progress toward eliminating certain vulnerabilities, the attainment of the goal to identify, characterize, and satisfactorily address all significant chemical safety vulnerabilities is a challenging, ongoing process, especially at the larger DOE sites. The major roadblocks are the size of the problem (e.g., thousands of tanks and hundreds of miles of associated piping); technical issues (e.g., unique, complex, poorly known chemical mixtures stored in aging equipment); competing priorities; and limited resources.

One approach to resolving this issue is to make available and apply throughout the DOE complex a systematic and dependable protocol for assessing vulnerabilities, along with whatever necessary criteria, guidelines and methods. This would attempt to incorporate the best practices within the DOE complex.

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Interactions with, & Assistance from Others:

To Be Determined....

Assistance: Will be needed to publish and distribute the proposed guidebook.

Interactions with Other Organizations: The proposed guidebook would be of interest to the nuclear fuel-cycle industry, the American Nuclear Society, The U.S. Nuclear Regulatory Commission, the Chemical Manufacturers' Association, and other organizations.

This issue is naturally related to other issues identified at the Workshop (e.g., giving the right priority to chemical safety issues, integrating nuclear and chemical safety, management of safety basis issues, etc.

Schedule of Deliverables, Decision Points:

Schedule of Deliverables:

To be determined

A proposed approach to resolving the issue consists of:

- capturing and institutionalizing the best elements of vulnerability assessments and related efforts (e.g., protocols, methodologies, surveillance practice, tracking and reporting systems) undertaken at various DOE sites; and
- the development and distribution of a guidebook for vulnerability assessment, risk prioritization, and tracking, in light of the 1994 Chemical Safety Vulnerability studies and the PRF follow-up initiatives.

The protocol and approach recently developed and applied at Hanford, which was briefly discussed at the Joint Chemical Safety Issues Workshop, Albuquerque, NM, November 1998, could provide a starting point for this work.

(All team members and other interested people are most welcome to comment and suggest ideas for consideration.)

Decision Points:

To be determined

ISSUE 6-2: Communicating/exchanging technical information, controls, corrective actions regarding vulnerabilities.

Description of Issue:

NONE SUBMITTED -- *possible merge with Issue 4-2?

Issue 6-2 Champion and Team Members:

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Interactions with, & Assistance from Others:

To Be Determined

Schedule of Deliverables, Decision Points:

To Be Determined

ISSUE 6-3: Addressing the loss of corporate knowledge.

Description of Issue:

NONE SUBMITTED AS YET....

Issue 6-3 Champion and Team Members:

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Interactions with, & Assistance from Others:

To Be Determined

Schedule of Deliverables, Decision Points:

To be Determined

Issue 7: Chemical Reactivity and Incompatibilities

Issue 7-1: Improved Access to Technical Information on Chemical Reactivity and Incompatibilities

Description of Issue:

Information and guidance on reactive chemical hazards and incompatibilities are not

sharing resources and expertise among the DOE facilities and sites. Many sites have chemical experts with knowledge / experience that experts at other sites may not have, and vice versa. Lessons-learned for facility-specific chemical hazards are sometimes not shared within the same site and often not disseminated beyond the site having the information. There is a need to capture and share this knowledge and expertise. This is particularly important should the experts leave or retire without documenting knowledge / expertise that is important in the identification and analysis of chemical hazards. There is a need for the DOE community to collect all data on chemical hazards / reactions that the DOE consider to be significant chemical safety information

The purpose of this committee is to provide DOE facilities / sites with general guidance and information on reactive chemical hazards and incompatibilities. This would be done by working with the field elements' chemical experts (being identified by the Issue 7-2 Committee on Lack of Identifiable Technical Personnel) in collecting, analyzing, and interpreting available data on chemical hazards to provide lessons learned to all DOE facilities / sites and to help improve effectiveness of chemical safety programs. The information and guidance includes DOE facility-specific chemical hazards, hazardous / reactive chemicals unique to the major DOE facilities, and information and lessons-learned for other hazardous chemicals that, in the opinion of the DOE experts and members of this committee, are significant and deserve more attention.

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- Other team members need to identify their line management.

Interactions with, & Assistance from Others:

To Be Determined....

Schedule of Deliverables, Decision Points:

Schedule and Decision Points:

To Be Determined

Final Product: The compilation of information and lessons-learned on special chemical hazards for DOE facilities/sites. Guidance on EH-5 web-site addressing special chemical hazards.

Issue 7-2 and 2-2, combined: Identification and Use of Qualified Technical Personnel

**[Please note that issues 2-2 ("Available Expertise") and 7-2 have been combined since they appeared to be identical.]

Description of Issue:

The lack of identifiable technical personnel, well versed in areas of chemical safety, that can be used as a resource to aid in work planning and execution. Issue description: During operations involving chemicals many chemical safety questions can arise. These questions can involve the interpretation of technical data, determinations of how work can safely be performed, determining reactivities and incompatible situations, identifying time sensitive chemicals, etc. These questions can arise during all aspects of the chemical's life cycle such as storage, waste, and use, and can occur in all operations involving chemicals including D&D activities, laboratory use, maintenance activities, etc.

The purpose of this committee is to identify ways to get people who are knowledgeable in chemical safety involved with workers and planners so that the safety envelope is ensured. Issues to solve would include how to identify chemical safety "experts", determining their qualifications, roles and responsibilities of these "experts", and what to do if the "expert"

does not know the answer. Once identified, these experts will be available to workers and planners to use as resources.

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Interactions with, & Assistance from Others:

To Be Determined

Schedule of Deliverables, Decision Points:

Final Product: Initially, the primary deliverable of this committee is a plan on how this issue can be resolved which would then be submitted to DOE for approval and implementation.

Issue 8: Integrating Chemical Safety and Nuclear Safety

ISSUE 8-1: Relevance of TSRs or TSR-like controls for chemical hazards in nuclear or non-nuclear DOE facilities.

Description of Issue:

There are adequate DOE directives and guidance for contractors to identify hazards and develop / implement hazard controls in DOE nuclear facilities. However, DOE's requirements and guidance is lacking for non-nuclear/ chemical/toxicological hazards due in large part to the cancellation of DOE Order 5481.1B, "A Safety Analysis and Review System".

Some DOE field offices have retained DOE Order 5481.1B in their contracts while others have allowed the contractors to identify what is required through the S/RIDs, Work Smart Standards, or ISM processes. It is stated in DOE P 450.4, Safety Management System Policy, that "...Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences...." While the ISM directives and guidance documents do establish the basic requirements for identifying hazards and developing controls, they do not provide the degree of detail that many people feel are necessary to uniformly implement these requirements across the DOE complex for non-nuclear hazards.

There is not a uniform position within DOE Complex on controlling non-nuclear/

comparison to other industries. In addition, there is no industrial or regulatory precedent for Safety Class (SC) designation of SSCs in facilities or processes with only toxicological hazards. However, this position does not exclude or differentiate treatment of toxicological hazards from the hazard analysis activity in nuclear facilities.

Some related issues are as follows:

- Should we apply nuclear guidance to non-nuclear portions? (e.g., level of controls, level of safety documentation, etc.)
- Is a Safety Class SSCs required for chemical hazards that may challenge the public?
- Should we have TSRs for chemical hazards in nuclear facilities? If so, should Price-Anderson Act apply to violations of TSRs for chemicals?
- What type of authorization basis documents, such as evaluation criteria, functional classification, etc. for non-nuclear facilities?
- Should we develop a USQ-like process for non-nuclear facilities?
- How should we treat a combined release of chemical and nuclear materials?

It was suggested during the Joint DOE and EFCOG Chemical Safety Workshop that a regulatory driver in the form of a DOE standard or guidance should be developed to deal with the non-nuclear/toxicological hazards in the DOE authorization basis.

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Interactions with, & Assistance from Others:

To Be Determined

Assistance from DOE Office of Nuclear Safety Policy and Standards and "buy-in" from EFCOG Safety Analysis Working Group/Authorization Basis Subgroup

Interaction with and "buy in" from DOE DP, ER and EH and DOE Field Offices

Schedule of Deliverables, Decision Points:

Deliverables:

- Task Plan and Milestones
- Formation of a working group
- DOE Standard or Preparation Guide for Chemical Safety/Hazards Analysis

Schedule and Decision Points:

To Be Determined....

Issue 8-2: Handling the combined consequence of chemicals, or the combination of chemicals and radionuclides.

Description of Issue:

Emergency planning, hazard assessment, and safety analysis of Department of Energy (DOE) facilities require consideration of potential exposures to mixtures of chemicals, as well as mixtures of chemicals and radionuclides, released to the atmosphere. The consequence of simultaneous exposure to several radionuclides have routinely been added by summing the radiation dose for each radionuclide present. In the past, unlike radionuclides, the consequences of each chemical have been analyzed separately. This approach is not conservative, and may not adequately protect the health of persons exposed to mixtures.

Exposure to chemical mixtures may lead to additive, synergistic, or antagonistic health effects. Default recommendations for use in emergency management and safety analysis within the DOE complex where potential exists for releases of mixtures of chemicals has been developed. Methodology for application of these recommendations has also been developed. A paper describing these methodologies has been accepted for publication in the journal Applied Occupational and Environmental Hygiene. This describes the default methodology that has been developed for the analysis of the consequences of exposure to mixtures of chemicals for DOE's subcommittee on Consequence Assessment and Protective Actions (SCAPA). A copy of this paper is attached below.

A similar document was developed by the EFCOG-SAWG Nonradiological Hazardous Materials Safety Analysis Subgroup (NHM), and was included in the packet of deliverables that was distributed in June 1996. This NHM deliverables packet also included a document describing the "Differences between chemical and radiological risk guidelines and consequence calculations". A copy of this document is also attached.

It is my view that a path forward to facilitate implementation throughout the DOE complex of these default methodologies for analyzing exposure to mixtures of chemicals needs to be developed. Exactly how the consequences of simultaneous exposure to radionuclides and chemicals should be handled still needs to be determined. Exposure to either may exacerbate the health consequences of the other.

I need input from all of you regarding this issue. What should the draft document include? Can the documents described above (and copied below) form the basis of this draft document? If so, what should be included and what should be left out? What recommendations should we make to DOE-EH?

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Interactions with, & Assistance from Others:

To Be Determined

These will be discussed at the EFCOG-SAWG Authorization Basis subgroup workshop in Albuquerque January 25-26, 1999.

Schedule of Deliverables, Decision Points:

Deliverables:

To Be Determined

Schedule of Deliverables:

To Be Determined

The schedule for completion of this work is fairly aggressive. The issues, Champion's statement, Champion and Team Contact Information are to be submitted for posting on the web by November 17, 1998. Issue plans are to be submitted for posting on the web for comment by December 2, 1998. Final plans incorporating comments are scheduled for completion by January 12, 1999.

The ultimate goal is to have a Product/Presentation ready in time for the annual EFCOG-SAWG Workshop in June 1999.

Decision Points:

To Be Determined

Issue 9-1: A Road-map of Chemical Safety Requirements

Description of Issue:

The DOE Management Response Plan, prepared in response to the 1994 Chemical

DOE as a reason for not addressing known deficiencies in environment, safety and health chemical safety programs. The Management Response Plan called for DOE assistance to the field organizations in integrating DOE, EPA and OSHA requirements related to chemical safety, and specifically called for development of a "road-map" for chemical safety to be provided to DOE sites, that clarifies existing requirements and compliance objectives and provides guidance in achieving them. The issue being addressed by this team is whether or not such a road-map of requirements is still needed by the sites to facilitate the determination of the legal and regulatory requirements that apply to any given type of operation based on the hazards present.

The goal of this team is to establish a clearinghouse of information, approaches and tools that are already in use within the DOE complex to facilitate the identification and implementation of regulatory requirements for chemical safety. This clearinghouse will identify and describe existing models, systems and approaches, will facilitate the exchange of information and will provide a basis for determining the need for the development of a matrix of requirements by type of operation or hazard.

The team will inventory and evaluate existing guidance within the DOE complex (i.e., tools, programs, lists) that provide the regulatory requirements and best practices needed for a comprehensive chemical safety program. The DOE complex has a wide variety of operations, ranging from R&D environments to D&D environments. The different approaches currently being used in the complex to identify and implement the appropriate guidance are expected to be sufficiently broad based to cover the spectrum of activities at any one of the DOE related sites.

Once an inventory of the existing programs is complete, an overall evaluation of the existing approaches will be conducted. This evaluation will result in the determination of whether guidance providing a more systematic requirements road-map is needed. If needed, this guidance could be operation based (i.e., D&D requirements, R&D requirements, etc.), or hazard based (i.e., lead, cadmium, chemical storage, etc.). All of the programs, tools, and other approaches compiled will be made available to individuals interested in seeing what others are doing to address this need.

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Interactions with, & Assistance from Others:

To Be Determined...

Assistance: EFCOG and DOE report to DOE sites that they are developing a clearinghouse of requirements-based tools for managing chemical safety for the mutual benefit of all DOE sites and request that sites having such tools make them available via internet site addresses, electronic form, etc.

Interactions with Others: May interact with any site willing to share or needing a method to determine what requirements apply to a given hazard or operation. Expect to interact regularly with EH-52 Web-master to set up links from tools to the DOE Chemical Safety Home-Page.

Schedule of Deliverables, Decision Points:

To Be Determined....

Deliverables:

Establish a Clearinghouse of information, approaches and tools that are being used within the DOE complex to facilitate the identification and implementation of regulatory requirements for chemical safety. Include programs, lists, inventories,

and other relevant tools involving regulatory requirements and best practices for managing chemical safety.

- Set up a web-based bulletin board that allows for the posting of descriptions of various models, systems and approaches to gathering and interpreting chemical safety requirements information (establish a point of contact for each DOE site interested in participating);
- Establish a users group that will allow for the exchange of ideas, notification of new approaches as they are identified, and discussion of approaches to the interpretation and implementation of new requirements as they arise.
- Evaluate the Clearinghouse inventory of the existing guidance currently being used within the DOE complex (i.e., tools, programs, lists) to provide the regulatory requirements and best practices needed for a comprehensive chemical safety program.
- Based on this evaluation, determine whether guidance providing a more systematic requirements road-map is needed.
- If needed, determine whether this guidance should be operation based (i.e., D&D requirements, R&D requirements, etc.), or hazard based (i.e., lead, cadmium, chemical storage, etc.).
- All of the programs, tools, and other approaches compiled will be made available to individuals interested in seeing what others are doing to address this need.

Schedule of Deliverables:

To Be Determined

Decision Points:

To Be Determined

- Must decide when to stop trying to collect requirements-based tools and start evaluating their adequacy.
- Must determine whether a more systematic requirements road-map is necessary.

Issue 10-1: Chemical Life Cycle Management and Best Management Practices

Description of Issue:

Within the Department of Energy (DOE) Complex there exists a myriad of operations with different missions, complexity, and associated hazards. All of these operations, to some extent involve the acquisition, use, storage, and final disposition of chemicals. Recently, DOE Headquarters issued for review, a guideline for the management of chemicals, based on the Hanford Site Chemical Management Requirements. There is a need for the DOE complex to perform a thorough review of this guideline to assure its applicability, relevance, and adequacy if it is to be applied across the board.

[combined with 10-3, “Define Stages of Life Cycle Management” – No champion...]

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The team members line management will be identified in the future, as applicable, to assure adequate dissemination of information, line management support, and funding.

Interactions with, & Assistance from Others:

To Be Determined

Assistance:

This activity is by design, a joint effort among participants from DOE and the contractors from the various DOE sites. The results of this activity are identified within section 4.0. It is assumed any revision to the DOE guidelines for chemical management resulting from this activity will incorporate the recommendations from DOE, line management, and other contractor staff.

Interactions with Others:

Interactions with other applicable and relevant organizations will be identified, as applicable.

Schedule of Deliverables, Decision Points:

Deliverables:

The review of this guideline will result in the following deliverables:

- A recommendation on the intent and usage of the DOE guideline
- The clarification between a chemical management plan and a chemical management system
- Validate the appropriateness of the various elements of the guideline and whether it is at the appropriate level to allow implementation at the DOE complex across the board
- A joint contractor and DOE revision of the guideline to set forth a recommended approach to chemical management

Schedule of Deliverables:

To Be Determined

Decision Points:

To Be Determined

Issue 10-2: Chemical Life Cycle Management and Best Management Practices

Description of Issue:

NONE SUBMITTED AS YET...

Issue Champion and Team Members:

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Interactions with, & Assistance from Others:

To Be Determined

Schedule of Deliverables, Decision Points:

To Be Determined

January 27, 1999